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THE GAMBIA

REPORT OF THE DEPARTMENT OF DEVELOPMENT AND AGRICULTURE FOR THE PERIOD 1ST JUNE, 1951 TO 31ST MAY, 1952.

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REPORT OF THE DEPARTMENT OF DEVELOPMENT AND AGRICULTURE FOR THE PERIOD 1ST JUNE, 1951 TO 31ST MAY, 1952.

" POOR LAND MAKES POOR PEOPLE, POOR PEOPLE MAKE POOR LAND. "

INTRODUCTION.

The year under report has seen the agricultural and development programme of the Gambia gaining impetus and, with the substantial expansion of the Department, particularly the appointment of Development Officers to the Divisions, the appointment of a Soil Chemist and the establishment of Yundum as an Experimental Farm, sound foundations have been laid for faster progress in the future.

There has been material advance in many fields, but as each task is undertaken the magnitude and multiplicity of agricultural problems in the Gambia are becoming more obvious, and while the year is a record of progress there have been almost inevitable setbacks, particularly in the Fisheries Section of the Department which had another unsatisfactory and disappointing year; the exploitation of this natural resource must still be considered to be in its infancy.

STAFF.

2. As a measure of the expansion which has taken place it is worth recording that in the last three years the number of officers occupied mainly in agriculture in the Senior Service has risen from three in 1950 to fourteen in 1952. Even so, there remained throughout the period under review three vacancies in the Colonial Agricultural Service (Deputy Director of Agriculture and two Agricultural Officers) and the work of the Department thereby suffered commensurately. It is all the more satisfactory to record that the six posts of Development Officer, who are mainly engaged in agriculture, were filled before the year ended. By their initial efforts, the officers in question have worthily indicated the value they are likely to have in furthering the progress and prosperity of the Protectorate, although in the period under review they had not been long enough in position to make their presence fully felt.

3. In the absence of a substantive Deputy the Director was supported at Headquarters by the Forestry Adviser and the Entomologist, both of whom were appointed Acting Deputy Directors. The former was only able to give part-time services to the Department in view of his forestry responsibilities but, since these involved a number of extended tours in the Protectorate, he was able to pay frequent visits to the various agricultural stations and served to keep them in close touch with Headquarters.

4. The position concerning African Staff continues to cause disquiet. With solitary exceptions men of the requisite calibre and education show no interest in agriculture as a profession or career and the quality of the candidates who present

themselves for appointment as Agricultural Assistants and Instructors leaves much to be desired. This is a severe handicap to the work of the Department, which is often not properly appreciated. The expatriate staff is necessarily few in number and the Agricultural Assistants are the essential link with the mass of the farmers. Nearly half of the posts for Agricultural Assistants and Instructors in the approved establishment remain vacant owing to the low quality of the majority of candidates who apply for appointment, the bulk of whom have no particular interest in agriculture but merely "want a job" in the Government Service.

5. The problem is difficult. The occasional candidate with School Certificate qualifications automatically aspires to Agricultural Officer rank on first appointment. University Scholarships are few and far between and in any event the urgent need is for competent subordinate staff. The Gambia is too small to permit of a local Agricultural Training School or College and arrangements were accordingly made for Gambia students to be admitted to the Njala Training College in Sierra Leone. This has proved abortive and no student has so far been forthcoming to attend the College. The candidates applying for Agricultural careers either aspire to university training and decline anything less or are of insufficient educational attainment to be eligible for Njala or to benefit from attending the course if admitted.

6. As he territory depends entirely on agriculture for its existence, it is essential that Africans of promise should seek employment in the Department whose activities are directed at the mprovement of their major industry. It is therefore the settled policy of the Government to interest boys in the Protectorate schools in agriculture. Preliminary steps to that end have already been taken both in the village schools and in the Armitage School at Georgetown and it is worth recording that subsequent to the period of this report, this policy has already induced one of the most promising boys from the Protectorate to seek to qualify himself as an Agricultural Officer; the Government therefore has awarded him an overseas scholarship for the purpose of preparing him for a post in the Senior Service.

7. The most hopeful step, however, is the decision of Government to transfer the Teacher Training College from Georgetown to Yundum where the College will be integrated closely with the activities of the new Experimental Farm. It is intended that the curriculum of the College shall include a considerable amount of agricultural instruction so that the teachers may be themselves imbued with interest in the subject which they can subsequently impart to the children of the Protectorate. This, of course, is a long term policy and in the meantime the African staff problem in the Department remains difficult.

8. The full departmental staff list is shown in Appendix I.

THE AGRICULTURAL SCENE.

9. There is little to alter or add to the description of the background to the Gambia's agricultural economy as contained in paragraphs 4-9 of the previous Report. Group farming has got under way with the establishment of two farms in the Central Division which have been marked out and prepared in readiness for the 1952 planting season. The most hopeful development is the expansion of rice growing in the riverine areas. No accurate survey has been possible but it is

estimated that well over a thousand acres of new land were brought under cultivation during the year. The area of undeveloped land suitable for rice has been variously estimated at anything from 100,000 to 300,000 acres making it evident that there is great scope for future development in this sphere. It should be emphasised that much of this potential rice land cannot be utilised by just planting rice and problems such as the clearance of mangroves, salinity, drainage, irrigation and improved techniques will have to be solved before much of this land can be made available. The immediate target is self-sufficiency and the elimination of the annual hungry season. Thereafter it is possible to contemplate with confidence the steady building-up of an export trade in rice.

METEOROLOGY

10. Rainfall during the year in the coastal belt was lower than in 1950 but still above average. Elsewhere rainfall was above the 1950 figures and at almost all stations in excess of previous averages. In some areas late storms did considerable damage to groundnuts lying in heaps in the open awaiting threshing, and to maturing grain crops.

11. The following are the rainfall statistics for the main stations:—

Stations.	*Rainfall (in inches)* 1950.	1951.	*Average.*	*No. of years of records.*
Yundum	65.64	58.45	49.98	6
Bathurst (Marine)	N/A	51.19	47.23	66
Bathurst (Half Die) ...	59.54	50.27	45.37	9
Brikama	66.43	59.66	51.61	6
Kerewan	65.51	43.10	42.94	21
Bwiam	59.30	45.50	45.00	7
Kuntaur	40.46	40.90	37.18	6
Yoroberi Kunda	38.10	40.00	37.64	18
Georgetown	39.44	45.30	38.51	32
Masembe	N/A	37.44	38.58	3
Cape St. Mary	70.02	57.39	47.83	23
Wuli	41.16	48.63	42.38	16

CROP PRODUCTION.

1. Food Crops.

(*a* RICE.

12. The extension of rice farming noted in the last Report continues. Happily the incentives are persistent. Not only has the taste for rice developed to the extent that it has become the most favoured staple food but the fact that it has risen so sharply in price has meant that the almost traditional system of buying rice with the proceeds from groundnut cultivation is breaking down. It is thus being forced home to the farmers that if they wish to have rice they must grow it for themselves. An encouraging aspect of this trend of events is that the Government policy of encouraging farmers to regard rice as a major crop instead of being only a women's

crop is beginning to take effect and, whereas rice cultivation has in the past been customarily work of the womenfolk, the men are more and more associating themselves with the crop. In the important Niamina Dankunku District a number of men now have rice plots independent of the women and some "strange farmers" are also engaged on rice production.

13. The greatest development is taking place in the lands bounding the Gambia River, both in the mangrove and in the reed-grassland areas. These areas are either inundated by the river at each tide or are sufficiently low-lying as to become swamps during the rainy season and in both cases the difficulty of access to the rice fields under such wet conditions has hitherto been a limiting factor to their full exploitation. This difficulty is being overcome by the construction of causeways leading down from the higher ground where the villages are situated, into and through the rice lands, thus providing a firm dry track on which the farmers can proceed to and from their fields. It is not, of course, just a question of enabling the farmers to arrive at the scene of their labours dry-shod. Before the causeways were constructed the time taken in wading to and from the fields sharply curtailed the length of the working day and prohibited the cultivation of sizeable acreages. The fact is that in the areas where causeways are now in use—some of them approach two miles in length—the farmers can reach their plots in a third of the time previously needed and can consequently spend more time on actual production and tackle larger fields.

14. It need hardly be said that the causeways are immensely popular and have done much to stimulate rice production. They are built, normally by contract, with funds provided from the Farmers Fund, at a cost which varies between £100 and £250 a mile depending on the number of bridges or culverts which are required. At the end of the 1952 dry season 8 causeways with a total length of over 15 miles had been completed whilst a further 7 with an estimated length of 11 miles were under construction. No survey has yet been undertaken but it can be stated that the new land put at the disposal of the farmers by these means already amounts to several thousand acres, not all of which has yet been occupied however.

15. In the mangrove areas of the lower river a further limiting factor to production is the difficulty of removing the mangroves. The trees can be killed and left standing or can be felled but in either case a considerable part of the land surface remains occupied by mangrove and cannot be planted with rice. Yields on an acreage basis are consequently low. A Development Officer has recently begun an intensive study of the problem, which may be capable of solution by the use of mechanical aids.

16. No current production statistics are available but there is every indication that, except in parts of the Upper River and MacCarthy Island Divisions which were devastated by phenomenal river flooding, more rice was harvested this year than ever before. Nevertheless substantial importations were still necessary to feed the urban population in the Colony area and to make good local shortages in many parts of the Protectorate. To attain self-sufficiency is the first objective in the production programme, but the prospect of growing an exportable surplus is bright and once the goal of self-sufficiency is being approached it will be possible to review the position.

17. As a result of more rice becoming available for sale internally the need for organised marketing increases and proposals on this subject were submitted to Government.

(*b*) Other Grain Crops.

18. Cereal production other than rice is concerned with Sorghums, Millets and Findo (Digitaria exilis) with small plots of maize grown as compound crops in the villages. There is nothing of moment to report and the harvest was average and insufficient. Yields leave much to be desired and with a view to introducing strains that will give a better return a wide range of imported varieties are under trial at the experimental stations.

(*c*) Root Crops.

19. It is possible to record some increase in the planting of cassava and sweet potatoes, both crops being more in evidence than formerly. The District teams, with the active support of the Chiefs, conducted a campaign to extend cassava plantings and in all Divisions many thousands of setts were purchased, transported and issued free in areas where planting material was scarce

(*d*) Pulses.

20. Beans and peas make little contribution to food supplies in the Gambia and are very limited in variety. There is consequently great scope for improvement and a number of imported varieties are under trial at Government Stations.

II. Cash Crops.

(*a*) Groundnuts.

21. The following table shows production in the post-war years, together with the price per ton and the total sum paid out to growers in each season:—

Season.	*Tonnage purchased.*	*Price per ton.*	*Total paid to producers.*
1946/47	56,398	£16	£902,368
1947/48	70,490	£20	£1,409,800
1948/49	62,257	£22	£1,369,654
1949/50	61,532	£22	£1,353,704
1950/51	64,831	£29	£1,880,099
1951/52	67,718	£40	£2,708,720

(Note. The 1949/50 and 1950/51 figures as printed in the previous Report have been amended in the above table).

22. For geographical reasons the quantity of nuts purchased in any season does not necessarily reflect the acreage under crop nor does it indicate whether growing conditions were favourable or otherwise. In other words, the market returns are not a true gauge of production. Two factors are involved, both concerned with the fact that, except on the seaboard, the Gambia is entirely surrounded by French territory.

23. Mention has been made in previous Reports of the annual influx of "Strange Farmers" from neighbouring territories who, by arrangement with indi-

vidual Gambia farmers, are allocated blocks of land for the cultivation of groundnuts. In return for the facilities provided they assist their hosts in their farming operations. This is not the place to discuss the merits or demerits of the system but whatever these may be it is clear that, provided the tenant's crops are marketed locally, their contribution to the total crop will be in proportion to their numbers in each season. For no well-defined reason these numbers fluctuate within wide limits and various investigators who have enquired into the whole subject have failed even to find correlation between numbers and the price payable for nuts. Statistics relating to "Strange Farmers" from 1912 up to the present time are included as Appendix IV to this Report.

24. The second factor in the situation is the respective prices which prevail in the Gambia and in adjacent territory in any season. The Gambia has no great width and at no point is any wearisome journey involved to reach a French groundnut market. Consequently any material disparity between the prices offered in the two countries promotes a traffic in groundnuts in the direction of the higher bidder. It is probable that over a period of years the Gambia has not lost more than has been gained from this state of affairs, but the fact that the movement of groundnuts does take place, often in substantial quantities, must be taken into account in any attempt to relate market returns to production.

25. Although the following table shows an improved shipping stowage rate during the year under report, indicating a better ratio between kernel and shell weights, the quality of the crop was deplorable and heavy quality claims could easily result when deliveries for the season are complete:—

1948/49	115 cubic feet to the ton.
1949/50	120 „ „ „ „ „
1950/51	140 „ „ „ „ „
1951/52	127 „ „ „ „ „

26. It is urgently necessary to improve the existing state of affairs, the main causes of which are discussed in the following paragraphs.

27. The general run of the crop is so poor that even when the harvest from the better areas is selected and reserved for seed it is greatly inferior for that purpose. The strain of nuts grown in the Gambia has clearly deteriorated to the point which calls for the introduction of fresh seed but as the annual seed issue amounts to approximately 6,000 tons of nuts a mass importation is out of the question. An attempt was made in 1951 to short-cut the usual process of small scale experimentation with imported varieties and subsequent multiplication of those showing promise, by making a bulk importation of several tons of Nigerian seed for immediate multiplication. For reasons given in paragraph 47 of this Report the attempt failed and cannot be repeated in the immediate future as the facilities for large-scale multiplication which were provided by the Colonial Development Corporation are no longer available. Experimental quantities of a number of imported varieties have been distributed for trial to the agricultural stations and the multiplication of any which show promise in 1952 will be begun in 1953.

28. The sharp deterioration in the quality of the groundnut crop during the last two years is due to several factors, but possibly the most serious has been that in the past all nuts have been purchased, regardless of quality, at a fixed price, and in consequence the farmer has had no incentive to improve or even maintain

uality. This has led to mishandling of the crop by the farmers at the time of harvest ne old standing trouble is that a considerable part of each crop has been h rvested efore it is properly mature, the reason being advanced by the farmers that unless ey harvest early the ground hardens to a degree that results in many nuts being ft in the ground when pulling takes place. It is clear that the soil could be loosened ith a hoe, and it is necessary for this farming practice to be introduced if this par- cular cause of bad quality nuts is to be obviated, but to date Government action encouraging a change of farming practice has not been successful and a new ap- roach is necessary. Immature produce of any description is automatically poorer an the genuine article, but an added danger in the case of the Gambia groundnuts nd this was probably a decisive factor in the quality of the 1951/52 crop) is that remature harvesting unnecessarily exposes the nuts whilst stacked in the fields any late rains that may fall. The traditional custom is to pull the plants while ne haulms are still green and to leave them lying in the fields to wither. They are ien stacked in heaps, still in the field and most frequently uncovered, until thrashed. Whilst in the field they are exposed to any late rain that may fall and failure to ensure nat they are allowed to dry in the sun before being stacked or re-stacked as the ase may be, results in the blackening of the kernels and the growth of moulds. his was probably a major cause of bad nuts in the 1951/52 season, as violent and nseasonable rains fell in late October with unprecedented flooding in the Upper liver Division and in other parts of the Protectorate. It is thought that many nuts nat appeared sound at the time of purchase were, in fact, damaged and became nouldy while in transit to Great Britain. Government has taken the occasion of ne Chiefs' Conference and every other opportunity to bring home to the farmers ne necessity for rapid improvement in the country's premier product and has urged Native Authorities to issue orders in their respective Districts, requiring farmers o ensure that the groundnuts are thoroughly dry before being stacked and that he stacks shall be adequately protected against rain. The effectiveness of these rders has been very limited, but it is hoped that the legislation and machinery which as been introduced subsequent to the period of this report, aimed at ensuring proper nspection of the nuts in the 1952/53 season, will result in a marked improvement n the quality of the nuts marketed and will act as a powerful incentive in encouraging armers to improve their handling methods. Copies of the Ordinance with subsidiary egislation are attached to this report to indicate that the matter is being actively ursued. (Appendix 5).

29. A more insidious cause of deterioration in quality and one which is nore difficult to combat is soil deterioration. The whole of the Gambia's upland rea in which the groundnuts are grown consists of light sandy soil of low fertility which presents a host of problems connected with its physical and chemical pro- erties. In one or two localities the soil is so exhausted from continuous cropping s to be virtually useless for agricultural purposes and there may well be larger areas ot yet determined. Nevertheless, such land continues to be used for the cultivation of groundnuts and produces a small harvest of light-weight nuts containing many empty shells or shrivelled kernels. In the absence of any inspection machinery during he period under review, coupled with the fact that the nuts are bought and exported n the undecorticated state, the Marketing Board found it difficult not to purchase hese pseudo-nuts and Government has included the standard of a minimum bushel veight for groundnuts offered for purchase in the quality legislation referred to n the preceding paragraph.

30. A more constructive and satisfactory way of dealing with the situation on a long term basis is to provide alternative forms of production and wherever possible this is being done. By way of example, in the Kerewan area the pressure on the uplands soils is being relieved by opening up adjacent swamp lands for rice cultivation. The same is being done in a smaller way in the Colony area where also market gardening is being encouraged.

31. The chemical aspect of the problem is being actively investigated by a Soil Chemist who has contributed Appendix III to this Report. A basic fact of importance is that groundnuts grown in the Gambia, together with all other legumes, either fail entirely to make nodules or do so very sparsely. Thus one of nature's own methods of maintaining and restoring soil fertility is not functioning. There are indications that trace element deficiencies may be simultaneously inhibiting nodule formation and the release of other plant nutrients and a successful outcome to the Soil Chemist's investigations is of prime importance to the future of the Gambia.

(*b*) Palm Kernels.

32. Palm Kernels constitute the only other agricultural product available in export quantities, part of the crop being derived from adjacent French territory. Exports during the post-war years, together with prices and returns to the collectors, have been as follows:—

	Quantity.	*Purchase price per ton.*	*Total sum paid to collectors.*
		£ s. d.	£
1946	1,291 tons	10 10 0	13,555
1947	1,159 ,,	12 0 0	13,908
1948	1,241 ,,	18 0 0	22,338
1949	1,551 ,,	21 0 0	32,571
1950	1,804 ,,	21 10 0	38,786
1951	1,558 ,,	£29—£45	67,064

33. Palm Kernels are all sold under agreement to the Ministry of Food in the United Kingdom. A welcome improvement in quality has taken place and, due to the activities of the Produce Inspectors and the co-operation of the Buying Agents, for the first time for some years no quality claims were made against the 1951 shipments.

(*c*) Castor Seed.

34. Castor Seed is merely mentioned as a possible export crop of the future. Increasing interest is being shown in it by local farmers and small quantities have been offered to the Marketing Board for purchase. It should grow well under Gambia conditions and its deep-rooting habit is a valuable agricultural asset. For that reason it is being planted in the fallows on agricultural stations. Should the crop reach commercial proportions severe measures will have to be introduced to prevent admixture with groundnuts.

(*d*) Other Cash Crops

35. Small plots of perennial cotton are to be found in most districts. The lint has no commercial value and is used for village industries. Kapok and cotton trees are numerous in the middle and upper reaches of the river and there is some local trade in the floss for mattress and pillow making. Tomatoes are widely grown for domestic consumption and sale but are of a poor type and low yield. Citrus and mangoes are much in evidence in the Colony area and are traded in quantity during the season.

MARKETING.

36. Organised marketing is restricted to the two main crops, groundnuts and palm kernels, and is controlled by the Gambia Oilseeds Marketing Board, of which body the Director is Chairman. Both crops continue to be sold under bulk contracts to the Ministry of Food in the United Kingdom. During the year the Gambia Board, in common with the other West African Marketing Boards, negotiated a new 4-year Agreement with the Ministry, the first year of which replaced the last remaining year of the previous Agreement. Under the new Agreement the system of negotiating prices annually was abandoned, much to the satisfaction of the Boards, and prices are now fixed in relation to world values, as determined from time to time by an independent Committee in London. A further innovation secures to the Boards the right to dispose of limited quantities of produce on the free market. This was arranged not so much in the hope of realizing prices substantially better than those obtainable under the Agreement but in order to enable the London Companies who market the produce on behalf of the Boards, to gain experience of trading in the free market and to create the nucleus of the organisation which will be required to dispose of large tonnages when the current Agreements expire in 1955.

37. The new Adulteration of Produce Ordinance was operated for the first time during groundnut buying and may be said to have been successful within the limits imposed by the insufficiency of inspecting staff. The number of traders authorised to purchase groundnuts was 330 located in 72 different centres, from which figures it is apparent that an organisation capable of providing continuous and comprehensive produce inspection would be an expensive undertaking and of doubtful justification. The best that could be done was to ensure that all buying stations were visited periodically whilst buying was in progress and since many traders co-operated well it can be claimed that the quantity of extraneous matter in the export consignments was lower than previously. With the appointment of approximately seventy Groundnut Inspectors, under the new produce inspection legislation for the 1952/53 season, it is hoped that adulteration will in the future be minimised.

38. The revised seednut distribution scheme which was described in paragraph 36 of the previous report did not operate successfully and it may yet involve a substantial loss to the Farmers' Fund, unless outstanding debts can be collected at a later date. It should however, be noted that during the 1952 planting season when money was not plentiful, farmers repaid some £30,000 of the outstanding debt. Because of the failure of the scheme, the Government and the Marketing Board have reviewed again the whole position and a revised method of collection, which will precede the opening of the Trade Season, has been instituted for the 1952/53 crop.

39. The 1951/52 season showed the need for some system of controlled marketing for rice and proposals were made to Government on the subject. The question of export does not yet arise but it has become abundantly clear that effective machinery is requred to purchase rice in areas where there is a surplus, for re-sale in areas of shortage. Otherwise the surpluses either do not reach the centres where they are most required or disappear from the scene altogether.

PESTS AND DISEASES.

Insect Pests.

40. In order to obtain a clear picture of the entomological conditions which prevail in the Gambia it is necessary to consider the influence of two major factors in maintaining the relatively stable biological balance which has become established over a long period of years. The first of these is the primitive system of shifting cultivation which, with its small individual holdings separated by areas of bush fallow, tends to limit outbreaks. In addition, the long fallow period breaks the cycle of crop infestation and the practice of burning-off bush before cultivation, however undesirable from other points of view, must have an important effect in destroying large numbers of injurious insects and cutting down the carry over from one season to the next. The second factor of importance is the incidence of rainfall. As a rule, heavy showers precede the real onset of the "rains" and are followed by a spell of dry weather, with the result that many insects, whose diapause has been terminated by the early showers, or who have been prematurely hatched, fail to survive the drought, so that population levels are low at the time when the crops are most vulnerable. In atypical years, when the onset of the rains is more rapid, the situation is of course reversed. It is therefore apparent, in view of what has been said above, that under existing conditions, the risk of widespread and severe infestations is not great. It must be expected however that, with increased pressure on the land and the growth of intensive cultivation, the practices which at present tend to inhibit large scale insect damage will no longer have so great an effect. This change is already becoming apparent in certain over-populated areas, where encroachment on fallow reserves and consequent soil impoverishment is producing conditions under which infestation is becoming more serious although still relatively localised.

41. The principal cash crop in this Colony is groundnuts and it is as well for the economy of the country that it is singularly free from insect attack. Apart from "rosette" disease, which is kept within bounds by early and close planting, the crop enjoys relative immunity in the field. Damage in storage, thanks to easy river communication, which allows rapid export after harvesting, is not so serious as would be the case if the nuts were kept longer in store. The situation nevertheless gives no cause for complacency, but it is anticipated that the construction of new seed stores and more stringent sanitary measures will do much to reduce infestation by Bruchids (*Pachymoerus cassiae*), Tenebrionids, (*Tenebroides mauritanicus*), as well as *Aphanus sordidus*, *Ephestia cautella* and *Lasioderma serricorne* to mention only a few of the major pests which are known to occur.

42. Of other crops; millets, sorghums and maize all suffer minor local damage from the borer, *Chilo pyrocaustalis* and in some cases severe defoliation by *Charaxes spp.* and *Pelopidiis mathias*. The midge, *Contarinia sorghicola*, is an important and widespread pest of sorghums and the possibility of introducing resistant strains as a control measure is being actively explored. These crops also suffer attack by the polyphagous Noctuid, *Prodenia litura*. The Variegated Grasshopper, *Zonocerous variegatus*, is a pest of compound crops and at times is so locally numerous as to call for control measures.

DISEASES.

43. Although it is probable that a wide range of plant diseases exists in this territory none of them has yet reached a stage where it is of serious economic importance. "Rosette" in groundnuts and methods used for its control have already been mentioned. Grain crops not infrequently show signs of virus diseases but seldom of a severity to suggest serious interference with yields. Phytomyces, of undetermined species, are also occasionally found attacking the seeding heads of millets. The parasite, *Striga senegalensis*, is all too common but could be controlled if the farmers were to make a concerted effort to eradicate it and a campaign is contemplated for the coming year. So far as trees are concerned, the African mistletoe, *Loranthus spp.*, is also common but little damage is done to economic crops.

THE WORK OF THE DEPARTMENT.

(*a*) Experimental Stations.

44. Apart from the new Yundum Farm which is reviewed in paragraphs 76—79 of this Report, Government maintains three Agricultural Stations in the Protectorate. The largest of these is at Masembe in the Central Division which was extended to embrace a total of 300 acres during the year. It is the Department's main crop experimental farm but since the soil consists entirely of the light upland type experimental work on rice is conducted at a small subsidiary station at Jenoi in the riverine area, some ten miles distant.

45. The Stock Farm at Yoroberi Kunda is primarily intended for stock improvement and the farmland is mainly devoted to the production of stock feed. Nevertheless small trials with imported crop varieties are conducted as an extension of the main trials at Masembe. A small but valuable dairy industry is centred at the farm.

46. The third station is a small 20-acre firm at Wuli in the Upper River Division which serves mainly as a seed farm. A small training centre for plough oxen is maintained and a few of the Masembe variety trials are replicated on the farm.

47. Experimental work common to all three stations during the 1951/52 season included trials with three varieties of Nigerian groundnuts and observation plots of cotton grown from seed also obtained from Nigeria. All ended in disappointing failure from circumstances beyond the Department's control. The groundnut seed (varieties—Castle Cary, KS/38 and Spreading) largely failed to germinate or where germination took place, the seedlings died on emerging from the soil. There seems little doubt that this was due to over-fumigation of the seed before dispatch and germination tests in the laboratory on the seed as received confirmed that it was the seed itself which was faulty. In these circumstances it is not surprising that the highest yield obtained in the field trials was only 147 lbs. of unshelled nuts per acre. Arrangements are in hand to repeat the experiment with fresh seed.

48. The cotton plots were not given a fair chance. The seed was ordered in good time but coast-wise communications between the Gambia and the rest of West Africa are scanty and in the event the seed did not arrive until some weeks after the breaking of the rains. The plants grew well but as the rainy season is of

comparatively short duration the crop was set too late to mature and the incidence of pests and disease became so high that the trials were abandoned and the residues destroyed by burning. It may well be that pests and disease will be shown to prohibit the successful growing of commercial cotton in the Gambia. Be that as it may—and the trials will be repeated—no success can be looked for unless planting is done immediately the rains break.

49. Subsidiary trials were made at all stations with coconuts from Sierra Leone and Loofahs from seed of Japanese origin. The former germinated well and have provided a good supply of seedling plants for distribution. At all stations the Loofahs fruited heavily but the sponges were too short in length to be saleable abroad.

50. The Mosembe Station undertook a series of variety trials with sorghums and millets. Unfortunately the records are not complete but the following tables showing the total yields per acre obtained, are of interest as showing the poor returns which are all that can be expected under present conditions:—

Sorghums.

Kinti Koyo	408 lbs.
Kinti Wulengo	346 lbs.
Dobbs selected	420 lbs.
P.133	100 lbs.

Millets.

Finger	850 lbs.
Bulrush	390 lbs.
Digitaria	290 lbs.

51. The Jenoi Rice Station carried out a trial with the five most promising varieties from the previous year. Results were as follows in lbs. per acre of paddy:—

Variety.	*Average yield.*	*Maximum plot yield.*
KAV	1101	1550
GEB.24	627	1338
DC.	792	1481
Saneh Koyo	1174	1174
Lead	539	1122

52. It is clear from the above that there is much scope for improvement in rice yields since it is considered that the Jenoi results are no better (and no worse) than those obtained by the farmers. It seems certain that without indulging in rice breeding locally, varieties and strains could be obtained from outside which would give substantially better yields under Gambian conditions than anything at present under cultivation in the country and arrangements have been made to obtain seed of a number of improved varieties from the Rokupr Research Station in Sierra Leone for trial next season. There is, however, a persistent difficulty in obtaining

good plant stands at Jenoi. The land on which the rice is grown is reclaimed mangrove swamp which is inundated for more than half the year with salt water. The flood water in the river during the rains washes away the salt and allows a rice crop to be grown but unexplained pockets of salt are left behind and cause barren patches in the rice fields. This automatically reduces acreage yields.

53. At the Yoroberi Kunda Stock Farm the year was occupied in building up the station herd which was decimated by anthrax in 1950. The policy in view is stock improvement by selective breeding with particular reference to improving milk yields, but milk recording has not yet started. Including young stock the herd numbered 39 head at the end of the period under review. In this interim period the herd serves as a demonstration to local farmers of improved cattle management and the manufacture of farm yard manure.

54. The pig industry at the Stock Farm suffered a set-back in that thirteen animals, including the only stock boar, died from trypanosomiasis and anthrax. The Veterinary authorities considered that the trypanosomiasis was mechanically transmitted from the cattle kraal nearby and since this was only a temporary structure the new shed is being built away at the extreme end of the farm to reduce the risk of further infection.

55. The death of the stock boar retarded the breeding programme which will in turn delay the start of the pig products industry which is planned. The cold room has been installed and awaits electric power but unless other mishaps intervene the production of hams, bacon and sausages should be possible on a small scale by the end of 1952.

56. The dairy industry centred on the farm is mentioned in paragraphs 61-64 of this Report.

57. There is nothing of special interest to record concerning the Wuli Station. As already mentioned, trials were undertaken with Nigerian groundnuts and cotton, coconuts and loofahs and some thousands of cassava setts were issued from the the farm to local planters.

(*b*) Agricultural Mechanisation.

58. This subject as it concerns the Gambia was discussed fully in the previous Report and there is little to add to the statement then made that it is intended to proceed cautiously. It is not the farmers alone who are prone to suggest that the use of machines must lead to a rapid increase in agricultural prosperity but prosperity is measured in terms of profits and returns and there is unfortunately no slackening in the general tendency to overlook the economics of mechanised agriculture. Moreover, mechanical cultivation is becoming a more and more expensive undertaking whilst the value of the resultant crops (rice excepted) shows no compensating increase. The issue is clouded in the Gambia where the only tractors in use, other than those being employed experimentally on the Colonial Development Corporation's Rice Farm, are owned either by Government or by the Farmers' Fund. This means that in practice their operation is almost automatically subsidized since there is no incentive to make them pay for themselves, much less to earn profits. The real test as to whether

or not a tractor is an economic possession is whether or not it can at least pay for itself. But profit and loss accounts do not figure in peasant agriculture. If they did the clamour for machines might lessen.

59. At the present time tractors controlled and operated by the Department are in use on the new Yundum Farm and on the Government Stations at Masembe and Yoroberi Kunda. Only in the Central Division are tractors yet available for employment on contract work on peasant and Group Farms but one mechanical unit is on order for similar contract work in each of the other three Divisions. Contract cultivation is mentioned under the heading of Development later in this Report.

60. The Workshop at Masembe under the charge of an exceptionally capable Agricultural Mechanic, continues to provide indispensable service. The Workshop is responsible for the maintenance of all mechanical equipment operated by the Department including the motor vehicles provided for the use of the Development Officers and the motor fishing dory. It also undertakes routine servicing and emergency repairs to all Government vehicles allocated to the Central Division. The Mechanic in charge enjoys a deservedly high reputation both within and without the Department.

(*c*) Dairy Industry.

61. The dairies at Wuli and Yoroberi Kunda have operated with fluctuating success and it cannot be said that at either centre the industry is firmly established. A persistent difficulty is the carriage of the butter to Bathurst. The Government river steamer "Lady Wright", which is the only vessel with reliable and adequate refrigeration, has been out of commission for long periods and it has consequently not been possible to arrange regular dispatch of the butter from the dairies. As storage capacity at the dairies is very limited occasions have arisen on which butter has had to be reduced to clarified butter fat for which there is a restricted demand and which in any case can only be produced at a loss since it has to sell in competition with imported cooking fats manufactured from raw materials considerably cheaper than cream.

62. The Wuli dairy is not at present economically successful and its continuance will need to be reviewed after it has had a fair trial in operating with the facility of a reliable means of transporting the butter to Bathurst. There is no demand from the cattle owners for a market for their cream which has to be pursued by the dairy staff throughout the country-side in which the herds are roaming. Adequate supervision was not available to ensure that the chase was energetic and although production was greater than in the previous year it is still far short of the output needed to obtain solvency.

Year.	*Cream purchased.*	*Butter produced.*
1949 (from 1/8/49)	No record	306 lbs.
1950	871 lbs.	435 lbs.
1951	2,815 lbs.	1,458 lbs.

63. The Yoroberi Kunda dairy is comparatively more flourishing but is nevertheless economically precarious. Here also there is no demand by the cattle owners for an outlet for their cream and they would be in no way distressed if the venture was abandoned. The decline in production is shown in the following table:—

Year.	*Cream purchased.*	*Butter produced.*
1949	16,185 lbs.	8,359 lbs.
1950	20,671 lbs.	6,882 lbs.
1951	7,138 lbs.	3,972 lbs.

64. It remains to be said that the consuming end of the industry is healthy. At both dairies the butter is sold at 3/4d. per lb. and retailed in Bathurst at 4/-. This compares with 5/10d. for fresh butter imported from New Zealand. Local supplies are readily absorbed and considerably greater quantities could be marketed if they were available.

(*d*) The Botanical Gardens.

65. These gardens, which are at Cape St. Mary, have been maintained in fair condition and various improvements have been made. The demand for planting material has increased and some 2,500 ornamental shrubs and trees and approximately 1,000 fruit trees were distributed from the nurseries during the year.

(*e*) Fisheries.

66. The work of the Fisheries Section has suffered many set-backs during the year. Trouble with the fishing vessel "Gallidor", which kept her idle for a considerable period, was followed by the wholesale theft of fish traps. Again, the problem of marketing to advantage a highly perishable commodity such as fish was a further difficulty which had to be surmounted. Although some progress was made towards solving these problems it is not possible to look back with any considerable satisfaction on the work carried out by this Section during the year, and plans have accordingly been made for its reorganisation on a sounder footing.

67. The early troubles of the "Gallidor", which are mentioned above were not cured until a new Kelvin J. 3 engine had been installed and an extensive overhaul carried out. After her refit she was engaged in experimental fishing during which drift nets, long lines, fish traps, trawls and multiple trolling were all given a trial with varying success. New fishing grounds were explored and it was clearly established that the best of these lay off-shore.

68. Fisheries extension work on the coast has been limited to the encouragement of native fishermen in the use of improved tackle and this has met with some measure of success. In the River itself, attempts have been made to interest the people in fishing. The Gambian, although living on the banks of a great river, has shown singularly little interest in fishing and has depended almost entirely for his fish on Senegalese from over the border, who make a considerable profit each year from a

short season's operations. Attempts to interest the local people in fishing show promise, and demonstrations in the Upper River and especially at the small fishing station run in conjunction with the Gambia Field Working Party at Genieri, have achieved a considerable measure of success. A full report on the Genieri venture is contained in Appendix II.

69. The year has seen the withdrawal of the "Altantic Fisheries" factory-ship "African Queen", and the closing down of all the Colonial Development Corporation's fishing activities in Gambia waters. Their departure was keenly felt by local fishermen, who, as a result, lost their employment. Government however was able to acquire on favourable terms an option on the surplus shark-fishing gear and a scheme for establishing a small scale shark-fishery, under Government auspices, which it is intended should eventually pass to African ownership and management, is now under consideration.

70. The future fisheries programme is under review and plans await approval for the transfer of all sea-fishing activities to the Atlantic coast, south of the River mouth. Not only are the people in this area fishermen by tradition but investigation has shown that the best fishing grounds are to be found in these off-shore waters. It was on this coast that Atlantic Fisheries established their shore-based shark-fishery and should it be decided to run a similar venture on a small scale it is apparent that there would be many advantages in centralising all operations in this area.

71. A visit to the Gambia in May by the West African Fisheries Research Institute's experimental trawler, "Cape St. Mary", provided an opportunity for the exhange of information and the foundation was laid for future liaison between the Institute and the Fisheries Section.

72. Doctor C. F. Hickling, Fisheries Adviser to the Secretary of State, paid a welcome visit to the Colony in April, 1952, when he was able to see the work of the Section and to make recommendations regarding the future fishing programme.

(*f*) Soil Research.

73. The Soil Research Chemist seconded to the Gambia by the Agricultural Research Council of Great Britain (in conjunction with the Colonial Agricultural Research Council) has completed his first year's work. Progress reports have been submitted to the two Councils above mentioned but some time must elapse before results capable of adoption under field conditions can be expected. A report by the Chemist outlining the nature of his problem and indicating the lines of his investigations is included as Appendix III.

74. Pending the conversion into a laboratory of a spacious building previously belonging to the Colonial Development Corporation at Yundum and subsequently purchased by Government, the Soil Research Chemist has been provided with laboratory accommodation and facilities by the Medical Research Council at Fajara. This valuable assistance is gratefully acknowledged.

DEVELOPMENT.

(*a*) Farmer's Fund.

75. In the previous Report details were given of the establishment of the Farmers' Fund. This Fund consists of the accumulated surplus profits of the Oil-seeds Marketing Board and expenditure therefrom is confined by statute to measures

or projects designed for the benefit and prosperity of the farming community. The following notes concern the developments financed from the Fund which are of agricultural importance and which are for the most part the special concern of the Department:—

(i) *Employment of Development Officers.* The grant allows for the employment of 6 Development Officers for a period of five years and includes provision for housing, office accommodation and motor transport. All six Officers were recruited and took up thier duties during the year and five houses and three offices were in various stages of construction when the year ended. After various vexatious delays the six kit-cars eventually arrived in May and the Officers were at last rendered mobile.

(ii) *Coconut experiments.* A modest number of coconut palms have been established in the past, mainly in the Colony area, but though conditions would appear to be suitable, for some reason which is not obvious the trees are not thriving. Gummosis is greatly in evidence and the germination of local seednuts very poor. A grant of £150 was obtained from the Fund for the importation of a quantity of seednuts from Sierra Leone and these were planted at Headquarters at Cape St. Mary and at the three Agricultural Stations in the Protectorate. At all centres germination was excellent and some 300 healthy seedlings were raised. The opportunity was taken simultaneously to import a further quantity of seednuts on behalf of the Kombo Rural Authority and two private individuals.

(iii) *Construction of access causeways to rice swamps.* This work is described in paragraphs 13 and 14 of this Report.

(iv) *Provision of village grain mill.* With a grant of £200 a power-driven grain mill has been purchased and installed at the Masembe Experimental Station. The project is experimental and will be repeated at other centres if and when success is achieved. The intention is to provide mill ng facilities (at a small fee to cover costs) in order to relieve the women of the heavy daily labour of pounding grain. In view of the extreme conservation of the villagers in the matter of foodstuffs—the degree of milling and the colour of the flour have traditional standards—no early appreciation of the merits of mechanical milling was expected or received but experience elsewhere has shown it to be a development which gradually arouses interest and support. It is as yet too soon to gauge whether this experience will be confirmed in the Gambia.

(v) *Fish Pond.* A grant of £250 was made for the building of a small experimental fish pond in the Central Division. The construction was faulty however, and the project has been abandoned.

(vi) *Poultry Improvement.* When the Colonial Development Corporation finally abandoned the Poultry Farm the Department acquired 66 Rhode Island Birds which were survivors of the Corporation's original breeding flock and which had been quarantined at a distance from the main farm which was devastated by Newcastle disease. The birds were dis-

tributed to the Agricultural Stations at Masembe, Yoroberi Kunda and Wuli where houses were erected and incubators provided by grant from the Fund. It is well known that whereas imported pedigree birds do not survive easily under village conditions the crossbred pedigree x local combines the superior physique and egg capacity of the former with the hardiness of the latter and the intention therefore was to raise a large number of pure-bred cockerels for issue in the villages. All has not prospered however. The male birds have proved to be sterile and the general condition of all three flocks has deteriorated. Various diseases made their appearance mainly as a result of the lack of balanced rations and from this cause and because the birds were not acclimatized to the trying climatic conditions in the Protectorate, heavy mortality occurred. The survivors show signs of improvement and arrangements are in hand to import a pen of fresh cockerels so that breeding can begin.

(vii) *Mangrove clearance experiments.* The problem is described in paragraph 15 of this Report and a Development Officer is detailed for special duty in carrying out the investigations. There being no standard technique for eradicating mangroves the work is entirely experimental and will proceed by trial and error. An initial grant from the Fund of £1,116 has been obtained for the purpose. The possibility of using mechanical aids in winching the trees and towing them by tractor into windrows is being explored and a causeway through a swamp, capable of carrying a tractor, is under construction. Experiments are being made in the manufacture of charcoal from mangrove logs.

(viii) *Pilot Scheme of Tsetse Control—Upper River Division.* A grant of £5,000 was voted from the Fund for a scheme of tsetse clearance in the Upper River Division which, on completion, is estimated will free an area of some two hundred square miles from *G. Palpalis*. Under the general direction of the Entomologist, the Development Officer supervised the work which started late in January and by the beginning of June when labour became scarce owing to the advent of the planting season, nearly twelve miles of riverine bush had been "partially" cleared. Work will be resumed after the harvest and it is hoped that by the middle of 1953 the full programme of work will be completed. The cost of clearing, on a contract basis, has worked out at £97 per mile, the total expenditure to date being £1,120.

(ix) *Contract ploughing.* The demand for this service by the local farmers is greatly in excess of the Department's resources but a Government tractor with equipment, based at Masembe, was able to plough 78 acres, mostly rice land, in the Central Division in 1951. The charge was 25/- per acre. Similarly the Colonial Development Corporation undertook a limited amount of contract ploughing for local farmers in the MacCarthy Island Division. In order to extend the assistance that can be given to farmers throughout the Protectorate the Fund has provided the means of acquiring one tractor unit for each Division. In addition to undertaking contract work for the farmers the units will be available for any development work for which they are suited.

(x) *Portable power saws.* The fund financed the purchase of two mobile power saws which it was hoped might be suitable for mangrove clearance. In the event they proved to be too heavy for use in th' swampy ground but may yet be useful when operated from the cause ways under construction.

(xi) *Fatoto Rice Scheme.* The Fund has provided a sum of £1,500 for the construction of a dam wall with sluice gate across the only natural outlet of the Fatoto Swamp. The swamp is rain-fed and the intention is to grow a dry season rice crop as the water recedes. An earlier earth dam was broken by local fishermen as it interfered with their fish traps and the new wall is being solidly built with concrete.

(xii) *Vegetable Seeds.* A grant of £100 was made from the Fund for the purchase of vegetable seeds for re-sale to farmers in outlying areas.

(xiii) *Composting.* The Fund provided a sum of £250 for the experimental composting of town refuse and night soil from Bathurst. The work only commenced at the end of the year.

(xiv) *Communal Vegetable Garden.* The Colony area is exhausted agriculturally and in most localities even groundnuts have ceased to give profitable returns. Most of the area is semi-urbanized and the majority of the population are either whole or part-time wage earners. There remains however, a minority of agriculturalists and the establishment of a communal vegetable garden is a minor scheme amongst o hers, to provide remunerative production for these people. Five acres of land have been selected and are being capitalized by a grant of £1,000 from the Fund in the provision of fencing, windmill pump, cattle for manure making, tools and implements etc. Thirty persons have been selected from amongst a large number of applicants to work and share in the garden and all future and recurrent expenditure will be met out of profits. The garden is supervised by a Development Officer experienced in intensive vegetable production and when the time arrives assistance will be given in marketing. Prospects for this venture are good as there is a large unsatisfied demand for vegetables in Bathurst and other residential areas and it is intended to open additional gardens as soon as the forerunner is properly established. The gardens will be worked and managed on co-operative principles to facilitate their registration as Co-operative Societies at a later date if that should seem desirable.

(xv) *Kotu Stream Rice Scheme.* This is another minor project designed to assist the Colony area and the Fund has provided a sum of £1,000 for the clearance of bush on both banks of the Kotu Stream and for the institution of water control which will enable rice to be grown on the reclaimed land. A further benefit to the people from this scheme will be the elimination of tsetse fly from this locality.

(xvi) *Fishing, Upper River Division.* Following the abnormal floods which occurred in the Upper River Division in October various grants from the Fund have been made for Flood Relief Measures. Amongst these is one for £95 for the development of fishing in the Division but since

fishing has not hitherto been regarded with any enthusiasm by the local people the only progress to date has been the inducement by a system of bonuses, to two Senegalese fishermen to establish themselves in the area. It is hoped in this way not only to augment food supplies but to demonstrate to the local people that fishing is a profitable industry.

(xvii) *Rice Cultivation, Western Division.* At the very end of the year under review a grant not exceeding £3,000 was approved from the Fund for the construction of bunds, drains and dams in the Western Division in potential rice areas.

(xviii) *Distribution of cassava setts.* In all Divisions small grants were made from the Fund for the purchase of cassava setts in areas of plenty and their transport and distribution in areas of shortage.

(xix) *Purchase of Rotovators.* Under grant from the Fund two "Gem" rotovators are on order for experimental work in rice swamps.

(xx) *Group Farming.* As foreshadowed in the previous Report, two Group Farms comprising 9 and 5 smallholders respectively were established during the year. The farms were capitalized from the Farmers' Fund to the extent that the costs of clearing the land, laying out the farms, constructing cattle sheds and building wells were borne by the Fund but all subsequent expenditure devolves on the smallholders themselves. This includes the charge made by the Department for tractor ploughing which is collected after the groundnut crop has been sold. The farms are under the charge of the Administrator of the Gambia Field Working Party who is advised on technical matters by the local Agricultural Officer. The Administrator's Report appears as Appendix II to this Report.

(xxi) *Pest Control.* From a series of grants made from the Fund rewards are given for the tails of the slaughtered pests brought to Divisional Headquarters and at the end of May, 1952, the following impressive totals had been reached since the campaign started late in 1950:—

Baboon	40,467
Monkey	19,016
Pig	19,414

Approximately £7,311 has been paid out in rewards to date, a figure which must be several times less than the value of the crops which would otherwise have been destroyed.

(*b*) Yundum Experimental Farm.

76. In the last Report it was recorded that, following the abandonment of the Gambia Poultry Farm project, the Colonial Development Corporation had convened a Working Party which was attended by representatives of the Colonial Office and by the Director, to consider the future of the Farm. The Working Party recommended

that a small 400-acre experimental farm should be opened and worked for a period of five years in the first instance, the scheme being financed jointly by the Corporation and the Gambia Government and administered by the Director. This was accepted by both parties, each of whom contribute £5,000 per annum, The Gambia's share being provided from the Farmers' Fund. The Corporation agreed to make an additional annual contribution of £1,200 towards the cost of management and capitalized the farm to the extent that it handed over a number of important assets of the defunct Poultry Farm; e.g. houses and other buildings, transport, tools and equipment etc.

77. The initial experimental programme is to test the suitability of the widest possible range of crops and horticultural products which might be grown successfully under Gambian conditions and to this end a great variety of seeds and other planting material have been ordered from various parts of the world for planting with the 1952 rains.

78. Progress to date includes the demarcation of the new farm, the boundaries being drawn to provide a total of 700 acres in order to include land for grazing. The remainder of the 10,000 acre Poultry Farm has reverted to the Native Authorities. An experienced Agricultural Officer has been seconded from Sierra Leone to take executive charge of the farm and an Assistant Farm Manager has been appointed but has not yet arrived.

79. The balance of the Poultry Farm houses and buildings not required for the experimental farm were acquired by Government mainly for the purpose of establishing a Teachers Training Centre. This close association between the Centre and the farm should prove a very happy arrangement and will provide the first opportunity for the teaching of practical agriculture in the Gambia. It is also intended that the Soil Chemist and the Forest Officer shall transfer to Yundum.

(*c*) Colonial Development Corporation.

80. With the closing of the Poultry Farm and the abandonment of Atlantic Fisheries the Colonial Development Corporation's interest in the Gambia is restricted to the Rice Project at Wallikunda and to the Yundum Experimental Farm operated jointly with Government. This latter venture is discussed in paragraphs 76-79 of this Report.

81. Although the Department has no direct responsibility for the Rice Project increasing concern had been felt at the accumulating capital development costs and inevitably considerable doubt was felt as to whether these could ever be recovered in foreseeable time, particularly since the possibility of mechanizing rice production had not been proven. The Corporation's decision to dispatch a mission of experts to advise on the future programme and policy was consequently learnt with relief.

82. The Mission completed its investigation early in March and reported to the Corporation. The programme for the coming season is the growing of 200 acres of rice, this being the capacity of the combine harvester, and no doubt future programmes will be framed in the light of the results obtained. Trials with other crops are to be made, notably with sugar cane.

83. The Mission's Report contained an emphatic recommendation that the Gambia Government should undertake a hydrological survey of the river and arrangements for this were put in hand accordingly.

LEGISLATION.

84. No agricultural legislation was introduced during the year.

VISITORS.

85. The following are some of the visitors to the Gambia during the year who were concerned with the work of the Department:—

A. Gaitskell, C. G. Hawes, D. Rhind, H. Macluskie	Members of the Colonial Development Corporation's Rice Mission.
D. Rhind	Scientific Secretary, West African Inter-Territorial Secretariat.
C. F. Hickling	Fisheries Adviser to the Secretary of State.
G. Mercer	Regional Controller, Colonial Development Corporation.
W. L. Bloomfield, N. S. Campbell	The Gambia Oilseeds Marketing Company, Limited.
Mrs. Elspeth Huxley	
D. G. Pirie	British Consul, Dakar.
W. D. Raymond	Colonial Products Advisory Bureau.
G. Watts-Padwick	Imperial Chemical Industries Limited.

ACKNOWLEDGEMENT.

86. I wish to acknowledge most gratefully the good work done by the staff of the Department and the loyalty and support accorded to me in full measure. It is a pleasure and an honour to work in such company. I wish also on behalf of the Department to thank the Officers of other Departments who have co-operated with us and assisted us so fully. In particular I must express appreciation to the Senior Commissioner and the Protectorate Administration, the Senior Veterinary Officer and his staff and the Forestry Adviser. My personal thanks are especially due to Mr. Pitt and Mr. Campbell who, as acting Deputy Directors, have taken such a large share in the work at Headquarters.

C. B. GARNETT,
Director of Development and Agriculture.

CAPE ST. MARY,
31*st July* 1952.

APPENDIX I.

STAFF LIST
(As at 31st May, 1952.)

Director:—	C. B. Garnett, M.A.
Deputy Director:—	Vacant
Agricultural Officers:—	J. A. Austin, B.Sc.
	H. Bailey, B.Sc.
	R. S. Liney, B.Sc.
	Vacant
	Vacant
Forestry Adviser:—	C. J. W. Pitt, B.Sc. B.A. (Acting Deputy Director—part-time duty).
Entomologist:—	R. W. H. Campbell (Acting Deputy Director)
Soil Research Chemist:—	R. A. Webb, B.A., D.Phil.
Stock Farm Manager:—	A. G. P. Drummond
Agricultural Mechanic:—	E. N. MacGregor
Development Officers:—	F. R. Le Brun
	W. R. Golder
	M. M. Smythe
	G. K. Petrie
	D. R. Younger
	W. A. Reid
Fisheries Officer:—	R. J. Midwinter
Master Fisherman:—	W. Brown
Administrative Assistant:—	C. I. Jagne
Clerks:—	E. A. Monday
	O. B. Joof
	S. A. N'Jie
	I. A. John
	O. F. Lowe
	M. H. Fye
	(Miss) M. R. Riley
	J. E. Sarr
	I. N. Stapleton
Agricultural Assistants:—	T. T. Morrison
	K. B. Jammeh
	M. B. Jagne
	J. E. M. Mungo-Lusack
	R. J. C. Lloyd
	J. Y. Yawo
	S. J. Samateh
	S. M. N'Jie
Agricultural Instructors:—	K. F. Dampha
	G. M. O. Lusack
	A. Kinti
	M. S. N'Dow
	B. L. Hamilton
	J. N. Dunn
	S. I. Jallow
	Patrick Parker

Agricultural Learners:— Kawsu Jadama
Musa Sanneh
M. S. Jeng
Musa Touray
B. Touray

APPENDIX II.

ANNUAL REPORT.

GAMBIA FIELD WORKING PARTY

1st June 1951—31st May 1952.

Introduction.

1. The Gambia Field Working Party started in its present form on 1st June 1951.

The main tasks of the Gambia Field Working Party are as follows:—

(*a*) To establish a Group Farm at Genieri approximately 90 acres. The farm is to be divided into nine plots of approximately 9 acres each, four of which are to remain in fallow for a minimum period of three years.

(*b*) To establish a second Group Farm of approximately 50 acres at Jomarr on similar lines to (*a*) above.

2. The Eastern Kiang Fishing Station to be established with the object of experimenting with various forms of fishing during the season and to establish fishermen trained at the station with tackle supplied on loan so that they may become their own village fishermen.

3. To try out any technique or practice the adoption of which might add to the amenities or improve upon the farming and domestic processes of a rural community.

STAFF.

4. The Staff of the Gambia Field Working Party consist of:—

The Administrator	Lt. Col. S. B. Cope
Clerk	Mr. J. A. Quist
Clerk-Interpreter	Mr. Landing Sanneh
Messenger	Mr. Landing Camara
Head Fisherman	Momodou Sarr.

with the addition of night watchmen, motor drivers, etc.

THE GROUP FARMS

(*a*) Genieri:

5. The task of clearing the bush from the Genieri farm commenced in September 1951 and some 35 acres had been cleared by the end of 1951. Towards the end of January when the crops had been harvested, more labour became available and the remainder of the 90 acres was cleared and cleaned by May 1952.

The work was done by contract, some dozen contractors being employed. this method was found to be more satisfactory than employing direct labour, as the contractor himself saw that the work was done, thus avoiding the employment of overseers. The contractors, however, in nearly all cases, reported that a certain area was finished when in point of fact it was not and it was necessary to inspect each plot very carefully. The average cost of clearing and cleaning worked out at about £9 per acre for normal bush. In some thickly wooded areas, more had to be paid and in other cases light bush was cleared at a cheaper rate.

Each of the nine farmers is to receive a head of cattle, these will be kept as a communal herd, the manure being used to fertilize the ground. The cost of the cattle will be refunded to the Farmers Fund by instalments at the end of each harvest. The farmers themselves are supplying a herdsman, and a cattle shed has been constructed and a well dug with funds from the Farmers Fund.

Nine farmers have been selected to work on the Group Farm. They were chosen by the Headman of Genieri in consultation with his Elders. Each will farm five acres each year, leaving four acres under fallow. The farms have been divided up into plots, so that a shuttle system of rotation can be used which will ensure that each acre will be under fallow for four years after five years cropping.

(*b*) JOMARR:

The decision to start a Froup Farm at Jomarr was made in December 1951, and work of clearing about 50 acres was commenced in January 1952. The area chosen was easier than at Genieri, being almost rectangular in shape so convenient to divide into individual farms. The work was done on contract in the same manner as at Genieri, but on the whole the contractors gave far less trouble and cleared the ground in a more satisfactory manner.

Five farmers have been chosen by the Headman of Jomarr, they will each have nine acres of land, and will farm them in the same way as the Genieri Farm. A cattle shed has been built and a well dug on the farm. The planting season is expected to begin when the rain starts in June.

THE EASTERN KIANG FISHING STATION.

6. The object of the Eastern Kiang Fishing Station have been described in the introduction of this report.

The station is equipped with a 24ft motor dory, two small paddle dories and two canoes and fishing commenced in September 1951. Different methods of fishing have been tried according to the season. So far, it has been proved that stake and float nets are satisfactory from September to March, and long lines have been tried from April to the present date. Recently, however, the catch has been poor as the following table will show:—

September	(6 fishing days)	421 lbs.	stake nets	
October	(19 ,,	,,) 1418½	,,	,, ,,
November	(25 ,,	,,) 734¾	,,	,, ,,
December	(15 ,,	,,) 728	,,	,, ,,
January	(23 ,,	,,) 1479	,,	,, ,,

February	(24 fishing days)	1253 lbs	stake nets
March	(28 „ „)	1860½ „	„
April	(25 „)	730½ „	Long Lines
May	(20 „ „)	578½ „	„ „

The fish is sold each day to neighbouring villages on a roster system at prices varying from 4d. to 6d. per lb. During the hot weather, however, e.i. from April, the fish has often gone bad before it could be delivered, and a modified system of salting and drying has been resorted to.

The Head Fisherman is in charge of the trainees, whose average number has been six. It was found that some of the trainees are not really interested in fishing, but just wanted a job for the time being, some of these have been dismissed. It is estimated that it takes six months to train a fisherman, the training includes net making, making long lines, handling boats and the various types of fishing. So far one of the trainees has qualified and from April 1952 became the fisherman of the village of Kaiaf. Considering that it is the off season, he is doing reasonable well, he was equipped with nets, long lines, a canoe, etc., for which he is repaying in monthly instalments, according to his catch. It has been decided not to take in any more trainees until July, as the catch is poor from April to August and may well discourage them.

Commissioners in each Division have been invited to send two young men to be trained at the station commencing in July.

The types of fish caught from September to May are as follows:—

Kujeli	4,222¾ lbs
Cat Fish	1,848½ „
Saw Fish	1,208¼ „
Shark	864½ „
Cassava Fish	335½ „
Baracouta	260½ „
Fetta	250 „
Lady Fish	117 „
Kubo Furo	23½ „
Konokono	21 „
Sting Ray	14 „
Sarjoto	10½ „
Fanjo	10 „
Krupa	10 „
Sokoro	7½ „

OTHER WORKS.

7. Time has not permitted the trying out of other techniques or practices, as the recent Administrator took over the appointment in January, but it is hoped to experiment in more detail later in the year.

CONCLUSION.

8. The normal life, never very inspiring in the area round Genieri, has not been improved by the various schemes which have taken place here. Money has been plentiful and the population has become completely "contract minded." This was brought out when the method and working of a Group Farm was explained to the fathers in some detail with diagrams etc. When the time came for any questions, the only one made was "will there be any more contracts for clearing next season?"

It s too early yet to see if the idea of a Group Farm will prove its worth but rom the experience gained from clearing and organising the farmers on the present two farms, it is evident that a 50 acre plot is quite enough to start with. Any future farm should be very carefully si'ed so that the terrain is as flat as possible, avoiding the expenses of contour bunds, and is of a shape easily divided into individual farms. and can be extended in future years. The Genieri farm which originates with the old Nutrition Field Working Party is a most peculiar shape containing obstructions such as a cemetary and laterite outcrops and has caused some consternation in deciding the best way to divide it up.

The fishing station has proved on the whole satisfactory. It is not the aim to catch a very vast quantity of fish, as even in the trade season, about 60 lbs. a day is all that a village can pay for. If fishing from April to August proves to be not worth while, it will probably be better in future years to reduce the number in station to the head fisherman and one other during these months.

(*Intld.*) S. B. COPE,
Administrator.

June 2, 1952.

APPENDIX III

SOIL RESEARCH.

Agricultural tradition in the Gambia is to clear bush to cultivate the cleared and for a few years and then to abandon it to recover naturally when the yields fall too ow. This system the 'Shifting System', is followed on about 70% of the cultivable land and can be worked indefinitely provided there is bush available for clearing when land has to be abandoned. It is in fact a rotation system, a cycle of cultivation alternating with a period of fallow during which land recovers to bush and the depleted fertility is restored.

Provided the fallow period is of sufficient duration adequately to restore fertility this primitive system may be competent to supply the needs of the population. If, however, abandoned land must be brought back into cultivation prematurely, or more bush must regularly be cleared than is compensated for by land going out of cultivation, the system fails ultimately through exhaustion of the land. At first production per acre falls, to be followed several years later by a fall in total production.

It is becoming apparent that in some areas the system has been and is being overstrained. In some areas the excess of clearing over abandoning has continued for so long that there is practically no bush left to clear. In these areas the average level of production has declined and the point is being reached when the total production will decline.

It takes, roughly, fifteen years of natural fallow to restore the fertility ost in five years of cultivation. A village ought, therefore, to have no more than one quarter of its land under cultivation at any given time. If this quarter will not provide sufficient food and cash crops, necessity dictates that extra land be cultivated. As a temporary measure this may not be specially harmful, but carried on regularly it spells exhaustion for the land and the people working on it. The return for effort becomes less year by year and the demands of subsistence compel more extended cultivation to the limit of human physical capacity. Before the equilibrium end-point is reached, the population will migrate, if it can, to less exhausted areas, but when inducement to move ceases life declines to bare subsistence and starvation limits the population to a level the impoverished land can keep alive.

The Gambia as a whole is not faced with any acute starvation. Food shortage is apparent however during the "Hungry Season", a relatively recent feature of the country's life. There is also evidence that shortage of food at planting time is a cause of loss of weight among the working population, and it is reasonable to suppose that capacity to work is also lowered at the same time. The 'Hungry Season', taken in conjunction with the poorer quality of the cash crop in the more densely populated areas affords evidence that the land is being cropped more intensively than it ought to be under the shifting system of management. In short, the present agricultural system cannot continue to support the increasing population, nor meet the demands for better standards of living.

By extra effort now, production could be increased, but only at the expense of the future. An unfortunate feature of the shifting system is the ease with which abuse of the land is obscured. If a village, already cultivating the safe limit of one quarter of its land, increases its acreage under crop to one half over a period of five years it could enjoy a doubled production for a further five years before the inevitable decline set in. Under more normal conditions of expansion, as for instance to

meet the needs of a population increasing at 4% per annum, a village could overcrop for twenty years before the effects became apparent. It is extremely probable that many areas of Gambia are in the phase of overcropping now, and a fall in total production can be expected unless some change in agricultural practice can be made soon enough. The fact that the quantity of groundnuts exported annually has not increased over the last forty years is strong presumptive evidence that the land is at its limit of production on the present system.

It is often assumed that the adoption of the primitive Shifting system of agriculture is the result of ignorance as to better alternatives. This does not seem to be the case however Engledow (West Indian Royal Commission, London 1945, Cmd. 6608) holds that a shifting system is only adopted because other systems cannot maintain the fertility of the land with continuous cultivation. The fundamental difference between a primitive system and a developed system is that whereas a primitive system cannot maintain the fertility of the land during a cultural sequence, the developed systems leave the land as fertile at the end as at the beginning of a cultural sequence and, in theory, the sequence can be repeated indefinitely. Under a primitive system each sequence of cultivation must be followed by an extended period of rest and recuperation, often exceeding several-fold the period of cultivation.

The problem facing Gambian agriculture is that of finding a system of land management which will make possible a general change from a primitive to a developed system. This may involve a change in the cultural sequence in general use. The change may be radical necessitating a complete re-orientation of agricultural policy and practice, or it may be relatively minor, depending on the reasons underlying the rapid fall in fertility, and the ease or difficulty of avoiding the decline.

Research is being undertaken to discover which of many possible soil deficiencies are the major causes of the fall in fertility. Some factors are already known, others remain to be determined. When it is established that any particular deficiency is a cause of low fertility the problem of the conservation of replenishment of that deficient factor arises. There are generally a number of ways of conserving or replenishing a deficient element, and a careful comparison will have to be made of the relative efficiencies of the various methods. It is clearly not economical to apply large quantities of manure, whether 'artificial' or natural, when only one or two components are really required.

It must be admitted as a possibility that with the best methods of maintaining fertility it may not be possible to continue production on a sufficient scale of the present day main crops. In such a case the types of crops grown will have to be changed before any extended development is possible. The introduction and extension of cultivation of new crops takes many years of effort. It is important therefore that a sound knowledge of soil conditions and limitations be acquired as a basis for formulating future policy if expensive mistakes are to be avoided.

The results of large numbers of soil analyses, the appearance of crops and other plants, and the responses of plants in pot and field trials, all point to a serious deficiency of nitrogen general in Gambian soil. This deficiency is of special significance. Nitrogen in the soil is normally replenished by natural fixation of atmospheric nitrogen through the agency of leguminous crops and certain soil bacteria. Although

a major crop in the Gambia, the groundnut, is a legume that does not fix nitrogen in sufficient amounts to offset the amount of nitrogen exported annually in the seed. Continued cultivation of this crop does not improve the land for the groundnut or any other local crop.

This inability to fix sufficient nitrogen may be the result of a soil mineral deficiency, or a combination of high temperatures and the mode of harvesting the crop causing a high mortality of the essential bacteria. These points are under investigation. If the defective function of the groundnut can be remedied easily a big step will have been taken towards increasing the production of groundnuts and also towards the maintenance of soil fertility. If the problem cannot be solved easily then either another legume must be grown at some time or other in a cultural sequence or nitrogen must be imported from abroad in the form of concentrated fertilizers.

Although nitrogen is a serious limiting factor at present it may not be a primary limitation, in the sense that the nitrogen deficiency may be caused by other deficiencies which, when remedied, will automatically rectify the nitrogen defect. Plants need about fourteen different mineral elements for satisfactory growth and fructification. Growth will be limited if one or more of the elements is not supplied in adequate amounts. Moreover, if one of the elements is available in insufficient amounts no excess of any or all of the other elements will remedy the defect. An excess of one element may well create a deficiency of another. In a recent experiment cauliflowers on a sample of Kombo soil remained alive but scarcely grew. Supplied with nitrogen, potash and phosphorus, they grew well for a time but succumbed to a boron deficiency.

Of the fourteen or so elements now known to be essential for the growth of plants, five have only recently been found to be essential. These five, needed in only very small amounts, are known as 'Trace Elements', but they merit as much attention as the major elements required in larger quantities. Twenty-five years ago this Department investigated the effect of a number of fertilizers on the yield of groundnuts. Five of the major elements were applied in various combinations. In no case was there an economic increase in yield and in no case did the fertilizers prevent a marked fall in yield in the third and fourth years of cultivation. At that time the importance of the Trace Elements was not known, and their deficiency in the soil may well have vitiated the work done in those four years. That the Gambia soils do suffer from trace element deficiencies has been established beyond any question, and all work done in the past which has not taken this fact into consideration needs to be reconsidered.

Although the ultimate test of a fertilizer or agricultural system is its effect in the field, the field is not always the best place to study it. Field work is not so precise as laboratory work and is subject to many more hazards. In the Gambia with its season of intense rainfall at times and easily leached soil, the absence of a response to a fertilizer cannot be taken as proof that the fertilizer is not needed. It may have been washed out of reach of the plant roots before it could have an effect. A lot of work will have to be done in pots in the dry season, or under cover, to be certain that the fertilizer under test is given a chance to act. Treatments which are successful in pots will then be tried in the field. Failure will call for detailed analytical investigation to ascertain to what extent leaching prevented a beneficial action.

A laboratory is therefore an essential for the proper prosecution of the work, and one is being constructed at Yundum on the site of the Experimental Farm. When this is ready and fully equipped progress should be much faster than it has been up to the present time with facilities somewhat restricted and scattered.

By making the fullest possible use of the information which exists on the subjects of soil fertility and plant nutrition, followed by care and effort properly guided, there is good hope that the productivity of the Gambia can be raised to three or four times its present level and maintained there. The need is for higher, sustained, yields per acre, not more acres under crop.

While research work must have a declared aim or objective a certain degree of flexibility must be permitted to pursue currently the most profitable line. The aim for agricultural research in the Gambia is clearly the evolution of a developed system of agriculture with a higher productive potential than the present system. This may well prove to be a step-by-step procedure. One problem has already emerged and is clearly defined, the problem of raising the Nitrogen level of the soil.

The natural way of replenishing soil Nitrogen, fixation by legumes, requires the production of several tons per acre of stem and leaf by the legume manure species. Failure to produce such amounts may be due to a number of factors. Boron has already been found to increase growth of Pigeon pea by 40%. The adjustment of soil acidity by addition of lime is another important factor. In addition, Molybdenum and Phosphorus have been found to increase the growth of legume species on poor soils in the Gambia. It has been observed that on good soil there is usually a moderate, or in some cases a good, supply of nodules on groundnut roots, whereas on poor soils the nodulation may be very sparse, or lacking. It is inferred from this that the general poor capacity of legumes to fix nitrogen is caused by deficiency of nutrients in the soil.

Groundnut yields have been raised 50 to 60% by the application of Boron and phosphorus, but without any obvious increase in top growth. Experiments are planned to test the effect of various fertilizers on stimulation of top growth in the hope that the groundnut can be made to function both as a cash crop and as a legume manure simultaneously. In case this proves impossible a number of other legume species are to be tried for their manurial value at the Yundum Experimental Farm.

The application of concentrated nitrogenous fertilizers as a means of supplementing or replenishing the soil nitrogen is not so straightforward as in more temperate climates. Chemical nitrogen is readily soluble and thus liable to leaching during the intense rainstorms experienced in the Gambia. Moreover responses to added nitrogen, even in the absence of leaching are not maximal by any means. It has been found that the addition of copper and boron in trace amounts to the soil raises markedly the ability of some plants to use added nitrogen. The profitable use of 'artificial' nitrogen is therefore dependent on avoiding leaching losses and the improvement of utilization. A number of ways of applying nitrogen to the soil, apart from the direct way are under consideration but it has not been found possible as yet to test any under field conditions.

The general problem of conservation of soil nitrogen hinges on the possibility of maintaining and raising the organic content of the soil. A soil with a low organic content cannot hold nitrogen against leaching effects. In addition there is a considerable loss by de-nitrification if the Carbon-Nitrogen balance becomes too low.

At the other extreme a soil of high organic content must have a corresponding high Nitrogen content, otherwise there is a rapid loss of organic matter. There will also be a nitrogen starvation of the crop plants because of bacterial competition in the soil. There is a good deal of evidence available now that in a mature soil the nitrogen content is determined by the organic content, which is in turn determined by the general level of nutrients available in the soil. It follows from this that to raise the level of nitrogen or organic matter in the soil one must raise the level of nutrients generally or correct special deficiencies. If this is not done the task of raising the organic content of the soil may prove to be impossible. In short, the nutrient status of the soil must be suitably balanced if wastage of adjuncts is to be avoided.

Any means of diagnosing soil deficiencies will be valuable in the field. There have been developed in other countries and in other climates a number of rapid tests for soil and crop deficiencies. There are also descriptions of the appearance various crops take on when they are suffering from particular deficiencies. With these, the farmer, or an agricultural adviser, can say what is the deficiency limiting growth of the crop, often in time to remedy matters and secure a satisfactory harvest. An important aspect of agricultural research will be the formulation and trial of tests and the compilation of descriptions of local crops and plants under different deficiency conditions. These will enable Agricultural and Development Officers to recognise deficiencies in the field. If there are available stocks of the necessary fertilizers many crops now doomed to failure through a lengthy hold-up at some stage in their growth could be saved. At the moment any attempt at salvaging a defective crop would be largely guess work even if the stocks of fertilizer were available.

In the sphere of practical application of research results it has to be borne in mind that the resources of the Gambian farmer are at best simple, and that he has to do the work himself. This sets limits on some operations, however desirable they may be. Large quantities of materials cannot be carted long distances, nor can large quantities of material be dug into the soil. Because of these limitations, both financial and physical, it is important that only treatments which are really necessary are recommended for general use. It is clearly wasteful in effort and money to buy and carry two hundred weights of a mixed fertilizer if the whole of the effect is due to a few pounds of one component. The basic reason for research is to achieve the maximum efficiency in the utilization of available resources.

(*Sgd.*) R. A. WEBB,
Soil Research Chemist.

APPENDIX IV.

STRANGE FARMERS.

Year.	*Strange Farmers Numbers.*	*Groundnuts (Tons) Exports.*	*Price to Farmers Per ton* £ *s. d.*
1912	6,525	64,196	No record
1913	9,940	67,404	No record
1914	14,908	66,885	No record
1915	32,220	96,151	No record
1916	9,315	46,366	No record
1917	20,727	74,300	No record
1918	20,509	56,490	No record
1919	22,440	70,290	No record
1920	24,150	84,037	No record
1921	22,048	58,273	No record
1922	20,566	62,978	No record
1923	17,383	62,564	9 0 0
1924	14,188	58,980	10 0 0
1925	14,652	46,583	9 10 0
1926	13,555	57,344	9 0 0
1927	17,237	65,107	10 0 0
1928	20,640	74,442	12 0 0
1929	18,874	56,355	7 10 0
1930	16,592	74,761 £4 17	6 to 8 0 0
1931	9,736	66,811	3 10 0
1932	16,513	37,315	5 0 0
1933	14,537	67,370	4 0 0
1934	8,332	71,919	3 10 0
1935	13,341	44,712	7 0 0
1936	9,754	49,104	6 6 8
1937	13,479	66,566	3 13 4
1938	9,195	46,651	3 3 4
1939	4,643	48,925	4 10 0
1940	4,890	39,188	4 0 0
1941	3,741	40,318	4 0 0
1942	2,585	15,651	5 10 0
1943	5,995	17,756	8 0 0
1944	10,793	27,538	12 0 0
1945	19,979	39,508	12 0 0
1946	13,263	37,772	16 0 0
1947	14,662	54,245	20 0 0
1948	10,863	68,934	16 0 0
1949	10,981	61,106	22 10 0
1950	16,512	58,791	29 0 0
1951	15,042	53,790	40 0 0

NOTE:—**Groundnuts** are exported in the year following that in which they were grown.

GAMBIA COLONY.

No. 9 OF 1952.

Assented to in Her Majesty's

named this First day of December,

1952.

P. WYN-HARRIS.
Governor.

LS

AN ORDINANCE to prescribe a standard of quality for groundnuts and to prohibit transactions in groundnuts for inferior quality.

[*2nd December, 1952.*] Date of commencement.

BE IT ENACTED by the Governor of the Gambia, with the advice and consent of the Legislative Council thereof, as follows:— Enactment.

1. THIS ORDINANCE may be cited as the Groundnuts (Standard of Quality) Ordinance, 1952. Short title

Interpretation.

2. In this Ordinance and in any regulations made thereunder unless the context otherwise requires—

No. 29 of 1948.

"buying station" means a place appointed under paragraph (*g*) of sub-section (2) of section 16 of the Gambia Oilseeds Marketing Board Ordinance, 1948;

"clean" means to free groundnuts from any foreign, superfluous or inferior matter, or otherwise to improve the quality thereof by picking or other means and includes to free groundnuts from excessive moisture;

"examiner" means a groundnut examiner appointed under section 3 of this Ordinance and includes any person appointed to assist a groundnut examiner in his duties;

"prescribed buying station" means a buying station prescribed for the purposes of section 5 of this Ordinance by the Director of Development and Agriculture under the powers conferred upon him by section 13 of this Ordinance;

"purchase" includes exchange, barter, accepting in satisfaction of a debt and any offer or agreement to purchase, exchange, barter or accept in satisfaction of a debt;

"sale and sell" include exchange, barter, delivering in satisfaction of a debt and any offer or agreement to sell, exchange, barter or deliver in satisfaction of a debt;

"standard of quality" means the standard of quality and freedom from moisture prescribed by Regulations made under this Ordinance.

Appointment of groundnut examiners.

3. All Administrative Officers and such other persons as may be appointed in writing by the Director of Development and Agriculture, with the approval of the Governor, shall be groundnut examiners for the purposes of this Ordinance.

Offering or accepting fees or reward or interfering with the examination of groundnuts.

4. Any person who—

(*a*) shall by himself or by or in conjunction with any other person, corruptly give, offer or promise any gift, loan, fee, reward or advantage whatsoever to any groundnut examiner as an inducement to, or reward for, examining or forbearing to examine any groundnuts; or

(*b*) being authorised to examine groundnuts shall, by himself or in conjunction with any other person, corruptly solicit or receive any such gift, loan, fee, reward or advantage; or

(*c*) being authorised to examine groundnuts, shall without lawful excuse, proof of which shall lie upon him, delay, detain or refuse to examine, pass or grade groundnuts; or

(*d*) shall in any way interfere with or endeavour to prevent any examination of groundnuts,

shall be guilty of an offence and, on summary conviction therefor, shall be liable to a fine not exceeding fifty pounds or to imprisonment for a term not exceeding six months or to both such fine and such imprisonment.

5.—(1) Any person who shall—

(*a*) knowingly sell, purchase, have in his possession for sale or purchase, or transfer possession of any groundnuts which do not comply with the prescribed standard of quality, other than groundnuts intended *bona fide* for use or consumption within the Gambia;

(*b*) remove any groundnuts from a prescribed buying station unless and until they have been examined by a groundnut examiner and certified by him in writing to comply with the prescribed standard of quality;

(*c*) remove from a buying station, other than a prescribed buying station, any groundnuts which have been examined by a groundnut examiner and certified by him in writing not to comply with the prescribed standard of quality, unless and until such groundnuts have been re-examined by a groundnut examiner and certified by him in writing to comply with the prescribed standard of quality,

shall be guilty of an offence and, on summary conviction therefor, shall be liable to a fine of twenty-five pounds or imprisonment for a term not exceeding three months or to both such fine and such imprisonment for a first offence and to a fine of fifty pounds or imprisonment for a term not exceeding six months or to both such fine and such imprisonment for a second or subsequent offence, and in either case the groundnuts may be forfeited.

(2) Where a person is convicted of an offence against this Ordinance and it appears to the court that the groundnuts to which the offence relates are capable of being cleaned, the court may, if it thinks fit, in lieu of imposing any other penalty, order the person convicted to clean the groundnuts to the satisfaction of the court.

Governor-in Council may grant licence to deal in groundnuts.

6.—(1) Notwithstanding anything contained in this Ordinance to the contrary the Governor-in-Council may grant a licence to any person to deal in groundnuts which do not comply with the prescribed standard of quality in such quantity and of such description and upon such conditions and for such purposes as may be specified in the said licence.

(2) When any licence granted under this section permits the export of groundnuts, the licence shall contain a condition that the exporter shall furnish a guarantee in such form as the Governor-in-Council may require that the groundnuts to be exported under the licence will not be sold on the open market in its inferior condition on arrival in the country of destination.

Powers of a groundnut examiner.

7. A groundnut examiner may—

(*a*) enter, at all times which are reasonable, any building or premises in or upon which there are or are reasonably believed by him to be any groundnuts intended for sale or purchase otherwise than *bona fide* for use or consumption within the Gambia;

(*b*) stop and search any vehicle, boat or canoe which is conveying or believed to be conveying any groundnuts and call upon the person in charge of such vehicle, boat or canoe or, if he cannot be ascertained, the person appearing to be in charge of such vehicle, boat or canoe and the persons or persons in charge of such groundnuts to unload any such groundnuts for examination;

(*c*) direct the person in charge of the vehicle, boat or canoe, and the person or persons in charge of any groundnuts seized under the provisions of paragraph (*e*) to proceed in or with the particular conveyance employed to the nearest suitable place for the purpose of depostiing therein the seized groundnuts and the receptacles in which such groundnuts are contained;

(*d*) examine any groundnuts and take samples thereof;

(*e*) seize and detain, to be dealt with as hereinafter provided, any groundnuts which he reasonably believes do not comply with the prescribed standard of quality, and any receptacle in which such groundnuts are contained.

(*f*) call upon any person to furnish him with any information which he may reasonably require for the purpose of investigating any offence against this Ordinance or any regulations made hereunder.

8.—(1) When any groundnuts shall have been seized and detained the groundnut examiner shall, if he is satisfied that the groundnuts were intended *bona fide* for use or consumption within the Gambia, release such groundnuts and any receptacle which may have been seized and detained in connection therewith. When inferior groundnuts detained may be released.

(2) When any groundnuts shall have been seized and detained the groundnut examiner shall, if he is satisfied that the owner of the groundnuts was not aware that the groundnuts did not comply with the prescribed standard of quality, permit the owner to clean the groundnuts; and shall, when the groundnuts have been cleaned, release them and any receptacle, which may have been seized and detained in connection therewith.

9. Except as provided in the last preceding section a groundnut examiner shall forthwith report the seizure and detention of any groundnuts or receptacle to the nearest magistrate. Detention to be reported the nearest magistrate.

10. When any groundnuts have been seized and detained under the powers conferred by section 7 of this Ordinance and the owner thereof is unknown or cannot be found, a complaint may be laid for the purpose only of enforcing forfeiture of such groundnuts, and the magistrate having jurisdiction in the place in which such groundnuts are detained may cause notice to be given in such manner as he may think proper, stating that, unless cause be shown to the contrary at the time and place named in such notice, such groundnuts will be forfeited; and at such time and place the magistrate, unless cause is shown to the contrary, may order the forfeiture of the groundnuts and the receptacles containing the same. Forfeiture when owner not known or cannot be found.

11. The Governor or any officer authorised by him in that behalf may prepare and publish a list of fit and proper persons to be groundnut experts for the purposes of the next succeeding section. Appointment of groundnut experts.

12. In any proceedings for an offence against this Ordinance the court may, if it think fit, direct any groundnut expert to examine any groundnuts or sample thereof and to report thereon to the court, and the report of such groundnut expert shall be sufficient evidence of the facts stated therein unless the person charged shall require such expert to be called as a witness. Power of court to direct examination by a groundnut expert.

13. The Director of Development and Agriculture, with the approval of the Governor, may by order prescribe— Power to make orders.

(*a*) the manner in which groundnuts in transit shall be protected;

(*b*) the manner in which groundduts shall be stored;

(*c*) buying stations for the purposes of section 5 of this Ordinance;

(*d*) the manner in which groundnuts shall be cleaned; and

(*e*) the manner in which examinations and tests shall be conducted.

Power to make regulations.

14. The Governor-in-Council may make regulations for all or any of the purposes following:—

(*a*) prescribing the dues to be paid in respect of groundnuts exported either generally or when exported from any specified port, or otherwise imposing fees and charges for the purpose of defraying the cost of the administration of this Ordinance:

(*b*) prescribing penalties for offences against any regulation made hereunder not exceeding a fine of fifty pounds or imprisonment for six months or both such fine and imprisonment;

(*c*) prescribing a standard of quality for groundnuts (including the amount of moisture which groundnuts may contain); and

(*d*) generally for the carrying out of the purposes of this Ordinance.

PASSED in the Legislative Council this First day of December, in the year of Our Lord one thousand nine hundred and fifty-two.

O. C. N'JIE,
Clerk of the Legislative Council.

THIS PRINTED IMPRESSION has been carefully compared by me with the Bill which has passed the Legislative Council, and found by me to be a true and correct copy of the said Bill.

O. C. N'JIE,
Clerk of the Legislative Council.

R/124.

GAMBIA. Regulations No. 18 of 1952.

THE GROUNDNUTS (STANDARD OF QUALITY) ORDINANCE. 1952.

(*Ordinance No.* 9 *of* 1952).

REGULATIONS.

(*Under section* 14 *of the Ordinance*).

The Groundnuts (*Standard of Quality*) *Regulations*, 1952.

In exercise of the powers vested in him by section 14 of the Groundnuts (Standard of Quality) Ordinance, 1952, and otherwise, and with the advice of the Executive Council, His Excellency the Governor is pleased to make and hereby makes the following regulations:—

1. THESE REGULATIONS may be cited as the Groundnuts (Standard of Quality) Regulations, 1952. Short title.

2. The following standard of quality is hereby prescribed for groundnuts:— Standard of quality for Groundnuts.

Groundnuts shall be thoroughly dry, and shall not contain more than five per centum by count of nuts which are mouldy, blackened or discoloured and shall reach a minimum bushel weight of twenty-two pounds.

A parcel of groundnuts shall be deemed to contain more than five per centum by count of nuts which are mouldy, blackened or discoloured, if there are more than five nuts containing mouldy, blackened or discoloured kernels in any hundred nuts picked indiscriminately from such parcel.

MADE by the Governor-in-Council this 1st day of December, 1952.

O. C. N'JIE,
Clerk of Executive Council.

R/124.

GAMBIA. Order No. 28 of 1952.

THE GROUNDNUTS (STANDARD OF QUALITY) ORDINANCE, 1952.

(*Ordinance No.* 9 *of* 1952).

ORDER.

(*Under section* 13 *of the Ordinance*).

THE GROUNDNUTS (MANNER OF EXAMINATION) ORDER, 1952.

In exercise of the powers vested in him by section 13 of the Groundnuts (Standard of Quality) Ordinance, 1952, the Director of Development and Agriculture, with the approval of His Excellency the Governor, hereby makes the following order:—

Short title.

1. THIS ORDER may be cited as the Groundnuts (Manner of Examination) Order, 1952.

Manner of examination of groundnut for mouldy, blackened or discoloured nuts.

2. Groundnuts shall be examined, for the purpose of ascertaining whether they reach the prescribed weight, in the following manner:—

The groundnuts shall be poured into a bushel measure until the groundnuts are level with the top of the measure. The measure may then be shaken or tapped by hand and the measure refilled by pouring until the groundnuts are level with the top of the measure. No pressure shall be applied to the groundnuts.

3. Groundnuts shall be examined, for the purpose of ascertaining whether they contain more than five per centum by count of nuts which are mouldy blackened or discoloured, in the following manner:—

One hundred nuts shall be picked indiscriminately from the parcel of groundnuts which is being examined and, if there are more than five nuts containing mouldy, blackened or discoloured kernels amongst such hundred nuts, the parcel of groundunts shall be deemed to contain more than five per centum by count of mouldy, blackened or discoloured nuts.

MADE at Bathurst this 1st day of December, 1952.

C. B. GARNETT,
Director of Development and Agriculture.

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